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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/560,792	12/15/2005	Zhinong Ying	9564-6	7404
20792	7590	03/07/2008		
MYERS BIGEL SIBLEY & SAJOVEC PO BOX 37428 RALEIGH, NC 27627			EXAMINER	
			TRAN, CHUC	
			ART UNIT	PAPER NUMBER
			2821	
			MAIL DATE	DELIVERY MODE
			03/07/2008	PAPER

**Please find below and/or attached an Office communication concerning this application or proceeding.**

The time period for reply, if any, is set in the attached communication.

### Office Action Summary

**Application No.**

10/560,792

**Applicant(s)**

YING ET AL.

**Examiner**

CHUC D. TRAN

**Art Unit**

2821

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --  
**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 21 December 2007.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-15 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.  
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).  
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/US)  
Paper No(s)/Mail Date 12/21/07.
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date \_\_\_\_\_.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: \_\_\_\_\_

## **DETAILED ACTION**

### ***Response to Arguments***

1. Applicant's arguments with respect to claims 1-15 have been considered but are moot in view of the new ground(s) of rejection.

### ***Claim Rejections - 35 USC § 103***

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

3. Claims 1-3 and 5-12 are rejected under 35 U.S.C. 103(a) as being unpatentable over Annamaa et al (USP. 7,126,546) in view of Masamura (USP. 6,819,939).

Regarding claim 1, Annamaa disclose a communication terminal in Fig. 1-3, comprising: a speaker (102) (Fig. 1) and a low profile built-in radio antenna element (105) (Fig. 1), wherein said antenna element comprises a flat sheet (210) (radiator component) (Fig. 2) incorporating a conductive antenna trace (211) (Fig. 2), said antenna trace (211) having a substantially flat pattern of conductive material carried on said sheet (210) (Fig. 2). However, Annamaa does go to details of an exciter is connected to said sheet such that the exciter is in direct mechanical contact with the flat sheet and devised to induce vibrations therein for generating sound. Masamura disclose a communication terminal in Fig. 6, comprising: the exciter (12) is connected to said sheet (13) such that the exciter is in direct mechanical contact with the flat sheet (13) (Masamura, Fig. 6 B) and devised to induce vibrations therein for generating sound (Masamura, Col. 7, Line 42-50). Thus, it would have been obvious to one of ordinary skill in the art to

modify Annamaa communication terminal device by providing the exciter is connected in direct to the flat sheet (diaphragm) for generating sound as taught by Masamura. Using the well technique of providing the exciter is connected in direct to the flat sheet (diaphragm) for generating sound of Masaruma would have been obvious to one of ordinary skill.

Regarding claim 2, Annamaa disclose that said sheet (210) is made from an insulating material (215) (Col. 2, Line 17).

Regarding claim 3, Annamaa disclose that said sheet (210) is made from a plastic material (215) (Col. 2, Line 17).

Regarding claim 5, Annamaa disclose that said exciter (audio) is connected adjacent to a side edge of said antenna element (211) (Fig. 2).

Regarding claim 6, Annamaa disclose that said exciter (audio) is insulated from said antenna trace (211) (Fig. 2).

Regarding claim 7, Annamaa disclose that said exciter (audio) comprises first and second speaker signal connectors (241, 242) (Fig. 2).

Regarding claim 8, Annamaa disclose that said antenna trace (211) defines an antenna patch (Fig. 2).

Regarding claim 9, Annamaa disclose that said antenna trace (211) is connected to a radio feed circuit (221) of the terminal, and to a ground plane (GND) (Col. 2, Line 31-42) which is spaced from the antenna patch (Fig. 2).

Regarding claim 10, Annamaa disclose that said antenna element (210) is positioned parallel to a ground plane (GND) (Fig. 2), wherein a spacing between the antenna element and the ground plane acts as an electromagnetic resonance cavity (Col. 4, Line 57-67).

Regarding claim 11, Annamaa disclose that a cover (shell) member of the terminal (Fig. 1) comprises an aperture adjacent to said antenna element (Col. 1, Line 26).

Regarding claim 12, Annamaa disclose that a sound channel (aperture) extends from a position adjacent to said antenna element (101) to a channel front outlet at a front side of the terminal (Fig. 1) (Col. 1, Line 25).

***Claim Rejections - 35 USC § 103***

4. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

5. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Annamaa in view of Nitta (USP. 4,851,654).

Regarding claim 4, Annamaa disclose a communication terminal comprise the flat sheet (210), but does not indicate the specific manner of said sheet is made from a ceramic material. Nitta discloses in Fig. 3 the flat sheet (45) is made from a ceramic material (Nitta, Col. 3, Line 57). Because both Annamaa and Nitta teach a speaker and a antenna device for generating sound. Thus, it would have been obvious to one of ordinary skill to substitute one dielectric material for the other such as ceramic material to achieve the predictable result of producing vibration in the ceramic sheet See (Nitta, Col. 4, Line 2).

Claims 13-14 are rejected under 35 U.S.C. 103(a) as being unpatentable over Annamaa in view of Kiguchi et al (USP. 6,973,710).

Regarding claims 13 and 14, Annama disclose a communication terminal comprise the

antenna trace (211) formed on the flat sheet (210) (Fig. 2), but does not indicate the specific manner of said antenna trace is printed or etching on said sheet. Kiguchi disclose a communication terminal in Fig. 3, comprising the antenna trace (32) is printed or etching on the flat sheet antenna element (31) (Col. Line 33) and (Col. 6, line 40-47). Because both Annamaa and Kiguchi teach a speaker and a antenna device for generating sound. Thus, it would have been obvious to one of ordinary skill to substitute one method of printing or etching the antenna trace on the flat sheet antenna element for the other to achieve the predictable result of producing a vibration on the flat sheet See (Kiguchi, Col. 6, Line 43-50).

6. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Annamaa et al (USP. 7,126,546) in view of Wohltmann et al (USP. 5,904,654).

Regarding claim 15, Annamaa disclose a communication terminal device as set forth in the claims except the exciter comprises a piezoelectric crystal configured to expand or contract responsive to the electrical signals to induce the vibrations. Wohltmann disclose an exciter detector unit in Fig. 1, the exciter (104) comprising a piezoelectric crystal (113) (Fig. 1) configured to expand or contract responsive to the electrical signals to induce the vibrations (Wohltmann, Col. 2, Line 56). Thus, it would have been obvious to one of ordinary skill in the art to recognize Annamaa communication device by providing the piezoelectric crystal diaphragm in the exciter as taught by Wohltmann. Using the well known material piezoelectric crystal material in the exciter for vibrating the plastic sheet of Hayes would have been obvious to one of ordinary skill.

***Conclusion***

7. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, **THIS ACTION IS MADE FINAL**. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

***Inquiry***

Any inquiry concerning this communication or earlier communications from the examiner should be directed to CHUC D. TRAN whose telephone number is (571)272-1829. The examiner can normally be reached on M-F Flex hours.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Douglas W. Owens can be reached on (571) 272-1662. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

TC  
February 27, 2008

/Douglas W Owens/  
Supervisory Patent Examiner, Art Unit 2821  
March 1, 2008